Application

for

United States Letters Patent

To all whom it may concern:

Be it known that,

Hiroshi SHIBATA

have invented certain new and useful improvements in

METHOD AND APPARATUS FOR DATA COMMUNICATIONS
CAPABLE OF AUTOMATICALLY SENDING A MAINTENANCE REQUEST

of which the following is a full, clear and exact description:

<u>TITLE</u>

METHOD AND APPARATUS FOR DATA COMMUNICATIONS CAPABLE OF
AUTOMATICALLY SENDING A MAINTENANCE REQUEST

5   <u>BACKGROUND</u>

1. Field

The present application relates to a method and

apparatus for data communications, and more particularly to a

method and apparatus for data communications capable of

10   automatically sending a maintenance request.

2. Description of the Background Arts

Image forming devices including copying machines,

facsimile machine, printers, and also multi function devices

15   made by combining such machines can receive maintenance

services from a service depot. When an apparatus has a

component which is defective or a consumable product whose

life ends or is about to end, a user sends a request to a

service depot for a repair service or a delivery of the

20   consumable product.

For example, a Published Japanese Unexamined Patent

Application, No. 2-51968 (1990), discusses an apparatus

capable of registering a list of consumable products in use

and sending a facsimile message to a designated service depot

25   when one of the consumable products need replacement so as to

receive a delivery of the necessary consumable product from

the service depot.

As another example, a Japanese Patent, No. 2744768, discusses an image forming apparatus capable of sending a facsimile message to a designated service depot of a problem

5   that has occurred in the apparatus.

As another example, a Published Japanese Unexamined Patent Application, No. 10-207304, discusses a facsimile machine capable of handling E-mail communications through the Internet and using E-mail to communicate with a service depot

10   for a request of various services.

However, in the above proposals, the request for the various services is directly sent to the service depot without notifying a manager or administrator who supervises equipment used in an office, including the above conventional

15   devices. As a result, the manager may not have knowledge about services requested of or provided by the service depot.

SUMMARY

The present application describes a novel data terminal

20   apparatus. In one example, a novel data terminal apparatus includes a communications mechanism, a detector, a register, and a controller. The communications mechanism is configured to perform electronic communications with a manager supervising the apparatus. The detector detects a status of

25   usage of a consumable product used in the apparatus and

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supplied by a service depot. The register registers electronic communications addresses of the manager and the service depot, identification of the apparatus, specification of the consumable product, and identification of the service

5 depot. The controller is configured to send a request for supplying the consumable product to the manager using the electronic communications address when the detector detects that the consumable product needs or soon needs replacement or replenishment. At this time, the request includes the

10 identification of the apparatus, the specification of the consumable product, and the identification of the service depot. Further, the controller is configured to send a report for reporting a completion of supplying the consumable product on the apparatus when the detector detects that the

15 consumable product is refilled.

The communications mechanism may perform E-mail communications with the manager.

The consumable product may include toner.

The communications mechanism may perform facsimile

20 communications with the manager.

The present application further describes a novel data terminal apparatus. In one example, a novel data terminal apparatus includes a communications mechanism, a detector, a register, and a controller. The communications mechanism is

25 configured to perform electronic communications with a

manager supervising the apparatus and a service depot
providing a repair service to the apparatus. The detector
detects an event that a maintenance component used in the
apparatus is defective or at the end of its useful life. The
5   register registers electronic communications addresses of the
manager and the service depot, identification of the
apparatus, and information of the event, and identification
of the service depot. The controller is configured to send a
request for the repair service to the manager and the service
10 depot using the respectively registered electronic
communications addresses when the detector detects the event.
At this time, the request includes the identification of the
apparatus, the specification of the maintenance component,
and the identification of the service depot. Further, the
15 controller sends a report for reporting a completion of the
repair service on the apparatus when the detector detects no
defect of the maintenance component.

The communications mechanism may perform E-mail
communications with the manager and the service depot.
20   The maintenance component may include a photoconductor.

The communications mechanism may perform facsimile
communications with the manager and the service depot.

Further, the present application describes a novel
method of ordering a consumable product of a communications
25 terminal apparatus. In one example, a novel method includes

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the steps of registering, detecting, sending, determining, and reporting. The registering step registers electronic communications addresses of a manager supervising the apparatus and a service depot supplying the consumable

5   product, identification of the apparatus, specification of the consumable product, and identification of the service depot. If the detecting step detects that a consumable product needs replacement/replenishment, the sending step sends a request for supplying the consumable product to the

10   manager using the electronic communications address, the request including the identification of the apparatus, the specification of the consumable product, and the identification of the service depot. The determining step determines that the consumable product has been supplied to

15   the apparatus. The reporting step reports to the manager a completion of supplying the consumable product on the apparatus.

The sending and reporting steps may perform E-mail communications with the manager.

20   The consumable product may include toner.

The communications mechanism may perform facsimile communications with the manager.

Further, the present application describes a method of ordering a repair service for a communications terminal

25   apparatus. In one example, a novel method includes the steps

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of registering, detecting, sending, determining, and

reporting. The registering step registers electronic

communications addresses of a manager supervising the

apparatus and a service depot providing a repair service,

5   identification of the apparatus, specification of a

maintenance component, and identification of the service

depot. If the detecting step detects that a maintenance

component is defective, or needs replacement, the sending

step sends a request for the repair service to the manager

10   and the service depot using the respectively registered

electronic communications addresses, the request including

the identification of the apparatus, the specification of the

maintenance component, and the identification of the service

depot. The determining step determines that the maintenance

15   component is not defective. The reporting step reports to

the manager a completion of performing the repair service on

the apparatus.

The sending and reporting steps may perform E-mail

communications with the manager and the service depot.

20   The maintenance component may include a photoconductor.

The sending and reporting steps may perform facsimile

communications with the manager and the service depot.

BRIEF DESCRIPTION OF THE DRAWINGS

25   A more complete appreciation of the present application

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and many of the attendant advantages thereof will be readily

obtained as the same becomes better understood by reference

to the following detailed description when considered in

connection with the accompanying drawings, wherein:

5   Fig. 1 is a block diagram of an Internet facsimile

apparatus according to a preferred embodiment;

      Fig. 2 is a block diagram of a facsimile main

controller of the Internet facsimile apparatus of Fig. 1;

      Fig. 3 is a table for explaining the contents of a

10   registration unit included in the Internet facsimile

apparatus of Fig. 1;

      Fig. 4 is a flowchart for explaining exemplary

procedures of ordering a toner refilling and a heater

maintenance performed by the Internet facsimile apparatus of

15   Fig. 1;

      Fig. 5 is a flowchart for explaining an exemplary

procedure of handling of E-mail sent from a service depot;

      Figs. 6A - 8B are illustrations for explaining the

contents of E-mail exchanged for the case of the toner

20   refilling between the Internet facsimile and the service

depot and the respective messages displayed on an LCD; and

      Figs. 9A - 12B are illustrations for explaining the

contents of E-mail exchanged for the case of the maintenance

requirement between the Internet facsimile and the service

25   depot and the respective messages displayed on an LCD.

DETAILED DESCRIPTION

In describing preferred embodiments illustrated in the drawings, specific terminology is employed for the sake of

5   clarity. However, the invention is not intended to be limited to the specific terminology so selected and it is to be understood that each specific element includes all technical equivalents which operate in a similar manner.

Referring now to the drawings, wherein like reference

10   numeral designate identical or corresponding parts throughout the several views, particularly to Fig. 1, an Internet facsimile apparatus 1 according to an embodiment of the present application is described. The Internet facsimile apparatus 1 of Fig. 1 includes a facsimile main controller 2,

15   a registration unit 3, a consumable product status detector 4, a maintenance status detector 5, a facsimile communications controller 6, a PSTN (public switched telephone network) controller 7, an E-mail data generator 8, a LAN (local area network) controller 9, an E-mail data analyzer 10, and an E-

20   mail controller 11. These components are connected with each other via a data bus 19.

The LAN controller 9 of the Internet facsimile apparatus 1 is connected to a PC (personal computer) 13 used by a manager of an office via a LAN (local area network) 12

25   which services the office and is connected to the Internet 14.

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The Internet 14 is connected to a service depot system 16 via
another LAN (local area network) 15. The service depot
system 16 is also connected to the PSTN controller 7 of the
Internet facsimile apparatus 1 via a PSTN (public switched

5   telephone network) 17.

In the preferred embodiment, a communications system is
established in which the Internet facsimile apparatus 1 can
communicate with the PC 13 by exchanging E-mail via a mail
server (not shown) hooked on the LAN 12 and with the service

10   depot system 16 by exchanging E-mail via the LAN 12 and a
facsimile message via the PSTN 17.

The Internet facsimile apparatus 1, the PC 13, and the
service depot system 16 exchange E-mail each other through
transmission using a SMTP (simple mail transfer protocol) and

15   a POP3 (post office protocol version 3) via mail servers
provided to the LANs 12 and 15.

More than one unit of the PC 13 may be connected to the
LAN 12 so that use of the Internet facsimile apparatus 1 may
be managed by the plurality of the PC 13, for example, when

20   two or more managers (administrators) are involved.

As shown in Fig. 2, the facsimile main controller 2 of
the Internet facsimile apparatus 1 includes a CPU (central
processing unit) 21, a ROM (read only memory) 22, a RAM
(random access memory) 23, a DCR (data compression and

25   decompression) unit 24, a scanner 25, a printer 26, an image

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memory 27, and an operation panel 28. The CPU 21 controls

the entire operations of the Internet facsimile apparatus 1,

including a sequential facsimile operation, operations for

notifying a request for replenishing a consumable product

5   such as toner and a request for performing maintenance of

resources such as a heater, E-mail operations for notifying a

toner refilling request and a service maintenance request,

and so forth.

The ROM 22 stores various control programs performed by

10   the CPU 21. For example, programs of a toner refill request

notification, a heater service maintenance notification, a

toner refill completion notification, and a heater service

maintenance completion notification are stored in the ROM 22.

The RAM 23 temporarily stores various kinds of data

15   necessary for the CPU 21 when it performs the above-mentioned

control programs and reserves a working memory area for the

CPU 21.

The DCR 24 compresses, or encodes, image information

when the information is transmitted and decompresses, or

20   decodes, encoded image information when the information is

received. Thereby, the time for transmission and receiving

of image information is shortened in an efficient manner.

The scanner 25 uses a CCD (charge-coupled device) to

serve as an image scanner that scans a document to read image

25   data of the document at a predetermined resolution in

accordance with an instruction sent from the CPU 21.

The printer 26 records the received image data on a recording sheet in accordance with an electrophotographic method using a photoconductive drum, toner, etc.

5   The image memory 27 saves images scanned by the scanner 25 and images received.

The operation panel 28 includes an LCD (liquid crystal display) and various kinds of operation keys, not shown, including switches for performing various operations during

10   the facsimile transmission, switches for inputting various kinds of information related to E-mail, a display portion for displaying a toner near-end indication when a consumable product such as the toner needs replenishment, a display portion for displaying a heater failure, and so forth.

15   As shown in Fig. 3, the registration unit 3 registers various kinds of terminal information regarding the Internet facsimile apparatus 1, including a serial number, an E-mail address, a facsimile number, and facsimile TTI (transmitter terminal identification) information and serves as a terminal

20   identification information registration means. The registration unit 3 further registers a mail address and a telephone number of the PC 13 used by the manager and serves as a manager registration means. The registration unit 3 further registers a mail address and a telephone number of

25   the service depot system 16, to which the order for the

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consumable products such as toner is directed, and serves as a service depot registration means.

In addition, the registration unit 3 registers consumable product information, including toner ordering information that includes a type of toner, service contents, status information such as a toner near-end, in association with the service depot system 16 and serves as a consumable product information registration means.

The consumable product status detector 4 includes a toner amount detection sensor (not shown) which detects a remaining amount of toner and sends a signal to the facsimile main controller 2. The consumable product status detector 4 serves as a consumable product status detecting means.

The maintenance status detector 5 detects a status of a maintenance-needed resource such as a heater that heats a fixing roller (not shown) for fixing a toner image on a recording sheet and, for this purpose, includes a sensor (not shown) for detecting a voltage value of the heater and sends a signal to the facsimile main controller 2 when the voltage value is not maintained within a predetermined range. The maintenance status detector 5 serves as a maintenance detecting means.

The facsimile communications controller 6 executes Group 3 protocols to perform Group 3 facsimile communications.

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The PSTN controller 7 connects the Internet facsimile apparatus 1 to the PSTN 17 and includes functions for automatically transmitting and receiving facsimile information.

5   The E-mail data generator 8 generates E-mail data based on various kinds of information and arbitrary repetitive documents registered in the registration unit 3 or data read from a document by the scanner 25.

The LAN controller 9 connects the Internet facsimile

10   apparatus 1 to the LAN 12 so as to perform communications protocols to communicate with the PC 13 or with the service depot system 16.

The E-mail analyzer 10 analyzes E-mail received through the LAN 12 and serves as an analyzing means. In this example,

15   the E-mail analyzer 10 analyzes E-mail with respect particularly to receipt acknowledgements to an order of a consumable product received from the service depot system 16 and to a request for a service maintenance received from the PC 13 or the service depot system 16.

20   The E-mail controller 11 transmits E-mail that is generated by the E-mail data generator 8 and provides information about a consumable product and/or maintenance of resource to the mail server through the SMTP via the LAN controller 9.

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In the thus-configured Internet facsimile apparatus 1,
the facsimile main controller 2 instructs the E-mail data
generator 8 to generate E-mail for ordering a consumable
product and the E-mail controller 11 to transmit the E-mail
5   to the manager registered in the registration unit 3 when
detecting an event such as that the toner needs to be
replenished based on detection information from the
consumable product status detector 4. In this case, the E-
mail includes the terminal information, order contents, and
10   information of a seller of the toner products such as the
service depot system 16. Further, the facsimile main
controller 2 instructs the E-mail data generator 8 to
generate E-mail for notifying of completion of toner
refilling and instructs the E-mail controller 11 to transmit
15   the E-mail to the manager upon detecting that toner refilling
is completed based on the detection information detected by
the consumable product status detector 4.

Further, the facsimile main controller 2 instructs the
E-mail data generator 8 to generate E-mail for requesting
20   service maintenance and instructs the E-mail controller 11 to
transmit the E-mail to the manager and to the service depot
system 16, both registered in the registration unit 3, upon
detecting that the heater is in need of service maintenance
based on the detection information detected by the
25   maintenance status detector 5. In this case, the E-mail

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includes the terminal information and information about the needed maintenance. Further, the facsimile main controller 2 instructs the E-mail data generator 8 to generate E-mail for notifying of completion of the heater maintenance and the E-

5   mail controller 11 to transmit the E-mail to the manager upon detecting that the heater maintenance is completed based on the detection information detected by the maintenance status detector 5.

     In this example, the facsimile main controller 2, the

10   E-mail data generator 8, and the E-mail controller form an E-mail controlling means.

     The facsimile main controller 2 displays through the operation panel 28 the receipt acknowledgements of an order for a consumable product and of a request for a service

15   maintenance, analyzed by the E-mail data analyzer 10. Further, the facsimile main controller 2 stops displaying the receipt acknowledgements through the operation panel 28 upon detecting that the toner fulfilling is completed based on the detection information detected by the consumable product

20   status detector 4 or that the heater maintenance is completed based on the detection information detected by the maintenance status detector 5. Thus, the facsimile main controller 2 forms a displaying means.

     Further, the facsimile main controller 2 provides the

25   above-mentioned notification to the facsimile number

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registered in the registration unit 3 through the facsimile

communications, instead of E-mail, when the manager or the

service depot system 16 is not capable of using E-mail.

Referring to Figs. 3 - 8B, an exemplary procedure

5 related to the toner refilling is explained. Fig. 4 shows a

flowchart of a procedure for ordering toner refilling and a

procedure for ordering heater maintenance. The latter will

be explained later. In Step S1, the facsimile main

controller 2 finds an event by counting a predetermined

10 number of pages printed or hours in operation and, in Step S2,

checks if the consumable product status detector 4 has

detected an event related to need for toner replenishing or

if the maintenance status detector 5 has detected an event

related to a need for heater maintenance. If the consumable

15 product status detector 4 detects an event related to need

for toner and the check result of Step S2 indicates that the

need is for a consumable product, the facsimile main

controller 2 determines that the remaining amount of toner is

at a near end status and displays the event of the toner near

20 end through the operation panel 28.

In Step S3, the facsimile main controller 2 determines

if the information necessary for the transmission of E-mail,

such as the terminal information, the manager information,

and the service depot information, shown in Fig. 3, is

25 registered in the registration unit 3. If the terminal

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information of the Internet facsimile apparatus 1, the

manager information of the PC 13, and the service depot

information of the service depot system 16 are determined as

registered in the registration unit 3 and the check result of

5   Step S3 is YES, the process proceeds to Step S4 in which the

notification of the toner shortage and the toner ordering is

sent to the manager.   More specifically, in Step S4, the E-

mail data generator 8 generates E-mail in a form such as

shown in Fig. 6A, the E-mail controller 11 executes the mail

10   transmission operation, and the LAN controller 9 transmits

the E-mail to the mail server through the SMTP procedure via

the LAN 12.   This E-mail is transmitted to the PC 13 on the

LAN 12.

The E-mail of Fig. 6A is an order sheet for ordering a

15   supply of toner, indicating information of a mail address of

the service depot system, information of the consumable

product including a status of the remaining toner and the

name of the product, and information of the sender including

an E-mail address of the Internet facsimile apparatus 1 of

20   the user, a serial number, and the name of the sender.

In Step S5, information according to the contents of

the E-mail of Fig. 6A is displayed in a form such as shown in

Fig. 6B on the LCD of the operation panel 28 after completion

of the transmission of the E-mail.   Then, the process ends.

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From the above E-mail, the manager understands that toner type 2 is in short supply at the Internet facsimile apparatus 1 of the sales department. Therefore, if the toner is in stock, the manager sends the toner to the Internet

5   facsimile apparatus 1 and if no toner is in stock, the manager transmits the E-mail to the service depot system 16 via the Internet 14.

Upon receipt of the E-mail, the service depot system 16 specifies the Internet facsimile apparatus 1 of the user and

10   the requisite toner product from the contents of the E-mail and subsequently sends E-mail indicating a toner delivery schedule, as shown in Fig. 7A, to the user at the Internet facsimile apparatus 1 and the manager at the PC 13 via the Internet 14. At this time, the contents of the E-mail are

15   displayed on the LCD displays in a form such as shown in Fig. 7B.

An operation of the Internet facsimile apparatus 1 at receipt of the E-mail from the service depot system 16 is explained with reference to the flowchart of Fig. 5. In Step

20   S10, the Internet facsimile 1 receives the E-mail of Fig. 7A from the service depot system 16. In Step S11, the facsimile main controller checks if the status indicates either that the consumable product is in short supply or that the service maintenance is in need, or not. If, in this case, the status

25   indicates that the consumable product is in short and the

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check result of Step S11 is YES, the facsimile main controller 2 determines in Step S12 if the sender of the E-mail is one of the manager and the service depot system 16.

Then, the E-mail data analyzer 10 analyzes the contents

5   of the E-mail sent from the service depot system 16 and, if the address of the E-mail sender is determined as identical to the address of the service depot system 16, the facsimile main controller 2 determines that the E-mail was sent from the service depot system 16. In this case, the facsimile

10   main controller 2 displays in Step S13 the text message of the E-mail as is, which is considered as corresponding to the receipt acknowledgement information sent from the service depot system 16. The display is through the LCD of the operation panel 28, such as shown in Fig. 7B.

15   The user of the Internet facsimile apparatus 1 sees on the display the message indicating that the toner is to be delivered on 30th of August and will refill the toner when it is delivered on 30th of August. After the toner refilling, the consumable product status detector 4 detects an event

20   related to an indication that the toner refilling is completed. Then, in the Internet facsimile apparatus 1, the facsimile main controller 2 performs the operations of Steps S1 - S3 Fig. 4 in the manners similar to those described above. But, in Step S4, the E-mail data generator 8

25   generates E-mail having a message that indicates the toner

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refilling has been completed, such as shown in Fig. 8A, to

the manager registered in the registration unit 3.   After

transmission of the E-mail to the manager with the E-mail

controller 11, the facsimile main controller 2 displays in

5   Step S5 a message through the LCD indicating that the toner

refilling has been completed, such as shown in Fig. 8B.

Consequently, from the information contained in the E-

mail of Fig. 8A, such as the sender information, the serial

number, and the E-mail address, the manager can confirm that

10   the toner refilling has been completed at the Internet

facsimile apparatus 1.   At this time, the receipt

acknowledgement information indicated through the LCD, such

as shown in Fig. 8B, is discontinued.

Referring to Figs. 3 - 5, and 9A - 11B, an exemplary

15   procedure with respect to heater maintenance is explained.

In Step S1 of Fig. 4, the facsimile main controller 2 finds

an event by counting a predetermined number of pages printed

or hours in operation and, in Step S2, checks if the

maintenance status detector 5 has detected an event

20   indicating that the toner is in short supply or if the

maintenance status detector 5 has detected an event

indicating that the heater is in need of maintenance.   If the

maintenance status detector 5 has detected an event

indicating that the heater is in need of maintenance and the

25   check result of Step S2 indicates a need for maintenance, the

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facsimile main controller 2 determines that the heater is in

a defective status and displays this status through the

operation panel 28.

In Step S6, the facsimile main controller 2 determines

5   if the information necessary for the transmission of E-mail,

such as the terminal information, the manager information,

and the service depot information, shown in Fig. 3, is

registered in the registration unit 3. If the terminal

information of the Internet facsimile apparatus 1, the

10   manager information of the PC 13, and the service depot

information of the service depot system 16 are determined as

registered in the registration unit 3 and the check result of

Step S6 is YES, the process proceeds to Step S7 in which the

notification of the heater defect and the maintenance

15   ordering is sent to the manager. More specifically, in Step

S7, the E-mail data generator 8 generates E-mail in a form

such as shown in Fig. 9A, the E-mail controller 11 executes

the mail transmission operation, and the LAN controller 9

transmits the E-mail to the mail server through the SMTP

20   procedure via the LAN 12. This E-mail is transmitted to the

PC 13 on the LAN 12.

The E-mail of Fig. 9A is an order sheet for ordering

service maintenance, indicating information of a mail address

of the service depot system 16, information of the service

25   maintenance including a status of the machine and an error

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code, and information of the sender including an E-mail
address of the Internet facsimile apparatus 1 of the user, a
serial number, and the name of the sender.

In Step S8, information according to the contents of
5   the E-mail of Fig. 9A is displayed in a form such as shown in
Fig. 9B, through the LCD of the operation panel 28 after
completion of the transmission of the E-mail. Then, the
process ends.

From the above E-mail, the manager understands that the
10   heater is defective on the Internet facsimile apparatus 1 of
the sales department and that the E-mail is also transmitted
to the service depot system 16.

Upon a receipt of the E-mail, the service depot system
16 specifies the Internet facsimile apparatus 1 of the user
15   and the requisite components for repair based on the contents
of the E-mail and subsequently sends E-mail indicating a
repair schedule, such as shown in Fig. 10A, to the user at
the Internet facsimile apparatus 1 and the manager at the PC
13 via the Internet 14.

20   An operation of the Internet facsimile apparatus 1 at
receipt of the E-mail from the service depot system 16 is
explained with reference to the flowchart of Fig. 5. In Step
S10, the Internet facsimile 1 receives the E-mail of Fig. 10A
from the service depot system 16. In Step S11, the facsimile
25   main controller checks whether or not the status indicates

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either that the consumable product is in short supply or that

the service maintenance is in need. If, in this case, the

status indicates that service maintenance is needed and the

check result of Step S11 is YES, the facsimile main

5   controller 2 determines in Step S12 if the sender of the E-

mail is one of the manager and the service depot system 16.

Then, the E-mail data analyzer 10 analyzes the contents

of the E-mail sent from the service depot system 16 and, if

the address of the E-mail sender is determined as identical

10   to the address of the service depot system 16, the facsimile

main controller 2 determines that the E-mail was sent from

the service depot system 16. In this case, the facsimile

main controller 2 displays in Step S13 the text message of

the E-mail as is, which is considered as corresponding to the

15   receipt acknowledgement information sent from the service

depot system 16, through the LCD of the operation panel 28,

such as shown in Fig. 10B.

The user of the Internet facsimile apparatus 1 sees on

the display the message indicating that the repair is

20   performed on 30th of August, such as shown in Fig. 10B.

After completion of the heater repair, the maintenance status

detector 5 detects an event indicating that the heater repair

is completed. Then, in the Internet facsimile apparatus 1,

the facsimile main controller 2 performs the operations of

25   Steps S1 - S3 Fig. 4 in a manner similar to that described

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above. But, in Step S4, the E-mail data generator 8

generates E-mail having a message that indicates the heater

repair has been completed, such as shown in Fig. 11A, to the

manager registered in the registration unit 3. After

5 transmission of the E-mail to the manager with the E-mail

controller 11, the facsimile main controller 2 displays in

Step S8 a message through the LCD indicating that the heater

repair has been completed, such as shown in Fig. 11B.

Consequently, from the information contained in the E-

10 mail of Fig. 11A, such as the sender information, the serial

number, and the E-mail address, the manager can confirm that

the heater maintenance has been completed on the Internet

facsimile apparatus 1. At this time, the receipt

acknowledgement information indicated with the LCD, such as

15 shown in Fig. 11B, is discontinued.

Although the notification to the manager and the

service depot system is performed with E-mail in this example,

the communications may be performed with a facsimile message

in an environment where E-mail is not available, which will

20 have the same effect as in the E-mail environment.

In this example, the facsimile main controller 2 is

configured to automatically display the text message of the

E-mail sent from the service depot system. In addition, the

facsimile main controller 2 may display a text message of the

25 E-mail, sent from the manager, in which the manager explains

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intermediate status, such as shown in Fig. 12A. In this case, a message may be displayed on the LCD, such as shown in Fig. 12B.

Although this example uses text information of the E-
5   mail as it is as examples of analysis with respect to formats of E-mail data, any specific format may be used.

The disclosed processes may be conveniently implemented using a conventional general purpose digital computer programmed according to the teaching of the present
10   specification, as will be apparent to those skilled in the computer art. Appropriate software coding can readily be prepared by skilled programmers based on the teachings of the present disclosure, as will be apparent to those skilled in the software art. The implementation may also, or
15   alternatively, use application specific integrated circuits or an appropriate network of conventional component circuits, as will be readily apparent to those skilled in the art.

Numerous additional modifications and variations of the present application are possible in light of the above
20   teachings. It is therefore to be understood that within the scope of the appended claims, the present application may be practiced otherwise than as specifically described herein.

This application claims priority to Japanese patent application No. JPAP2000-133419 filed on May 2, 2000 in the
25   Japanese Patent Office, the entire contents of which are

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hereby incorporated by reference.